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fungi, of saprophytic forms, of mosses and ferns, and flowering plants. Altogether it was a company well distributed in interest as well as in locality. From Dr. Sereno Watson on the east to Mr. Fletcher of Canada on the north, and Dr. Bessey on the west, and southward to Frank Earle on the Gulf, is the range represented by that collection of botanists. Those who live at intermediate stations need not expect to have their names mentioned, but they were there, over sixty strong.

These sandstone gorges are in the midst of untouched Indiana forest, and in the evening dinner was served on tables that were placed in the open air under the trees. The meal was ample and so were the appetites, and the drive back through the moonlight to the special train brought to a close one of the most delightful botanical excursions the Club has ever enjoyed.

After dinner the Club passed the following resolutions:

Resolved, That we do hereby express our most hearty thanks to the local committee for the thoughtfulness and care with which all the details of the excursion were planned and carried out so as to give to the party a most pleasurable entertainment; to Mr. R. B. F. Pierce, of the Indianapolis, Decatur and Western Railway, to whom we are indebted for free transportation on the railroad, and to Superintendent L. A. Boyd for his courtesy in accompanying the train and giving personal attention to our comfort and safety.

Resolved, furthermore, That we tender our hearty thanks to Mr. J. W. Leech for the satisfactory repast with which we were regaled at his delightful summer resort, and for the kindly attention he gave us as his guests.

Preliminary notes on *Isopyrum biternatum*.—Following a suggestion made to the writer by J. M. Coulter, I began some time since a study of the little plant whose name forms the subject of this paper. It is an insignificant member, in point of size at least, of the Ranunculaceæ. In general appearance it greatly resembles its near relation, the little *Anemonella*, both as to size and structure. It may be most easily distinguished by an examination of the fruit or of the root. The latter presents the appearance of a chain of tuberous-like thickenings, gradually diminishing in size toward the growing ends of the roots.

The fruit is not an achene, as in *Anemonella*, but a pod, or rather four pods forming a spreading sort of quadrangle. The number, however, is not invariable, occasionally but two, frequently three, appearing in maturity, though the embryology shows normally four. The flower, also, is not subject to the remarkable variability exhibited by *Anemonella*, having as a rule five petaloid sepals.

A study of the micro-chemical character of the tuberous-like thickenings of the roots revealed the absence, much to my surprise, of any deposits of starch therein. Further reactions revealed the presence in the cells of the subepidermal tissue of small quantities of aleurone. Still further investigation showed the presence in the fundamental tissue of inulin. This appeared the chief storage product of the plant. The same

was also found to be the case with the thickened roots of *Anemonella*, though in greatly increased amounts.

A study of the histology of the stem and root showed the presence of the usual elements of higher plant structure. The fibro-vascular bundles of the stem were some five to seven in number, of the usual form, and forming a circle about the hollow of the stem.

The root in the smaller and normal portions showed likewise no specially peculiar characters, but in the thickened portions exhibited a peculiarity quite interesting. The thickening seems due almost entirely to a special redundancy, or increase of the cells of the central cylinder, chiefly of the conjunctive parenchyma.

The histology of these thickened tuberous portions very clearly shows that they are true roots. The fibro-vascular bundles are centrally located, but very materially altered in appearance by the excessive development of conjunctive parenchyma. This thickening gradually crowds the endodermis toward the surface of the root, till in the older portions it would not be recognized except by very careful observations, but might easily be mistaken for an inner-like border of subepidermal tissue. The arrangement of the elements of the fibro-vascular bundles is also somewhat peculiar. In general they present the aspect of a biradial bundle, with the phloem elements greatly compressed and extending through the redundant parenchyma toward the endodermis something after the manner of a medullary ray. In some cases the bundles assume what might be called a triradial form, there being three of the diverging phloem masses.

This preliminary report must be considered as somewhat tentative, as I have not yet finished the micro-chemical study of the elementary structure of all the parts. I hope soon to have ready a full account of studies upon its general anatomy and organogeny, with a series of figures illustrating points of special interest and importance.—C. W. HARGITT, *Miami University, Oxford, Ohio.*

EDITORIAL.

[The editors of the GAZETTE depart from their custom in presenting as an editorial the following, from a prominent botanist, as an incisive expression of their own sentiments:]

THE EDITORIAL in the last GAZETTE, on botanical instruction in the colleges and universities of the United States, is certainly a timely one. The one-sided method of teaching biology pursued in one of our great universities and emphasized in more than one text-book is distinctly deplorable. One even notes in certain circles a tendency to read botany out of the scientific party altogether. I do not know whether the workers on animals have become ashamed of the word "zoölogy" or not—surely they have no more reason to discard it than botanists have to discard the word "botany," for both are connected with some very bad and very much abandoned methods of teaching—but there are a number of